

USSN 740,297

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storing a plurality of reduced spatial resolution image frames produced by a size reducer. The system has frame store which is capable of storing both a full resolution image frame and reduced spatial resolution image frame. The frame store additionally operates in two modes. In the first mode, both a full spatial resolution image frame is received from the image store to generate an output image frame. In the second mode, a plurality of reduced spatial resolution image frames are received from the image store to generate an output image frame.

The Examiner rejected Claims 1, and 4 through 14 under 35 U.S.C. 103 as being unpatentable over the publication by Hugh Boyd, Quantel.

Claim 1 has been cancelled and dependent Claims 4 and 5 have been amended to be dependent on Claim 2. Claim 6 remains dependent on Claim 5, Claim 7 remains dependent on Claim 6, and Claim 8 remains dependent on Claim 7. As Claim 2 was not rejected on the basis of any prior art and dependent Claims 4 through 8 add considerable detail, Claims 4 through 8 are believed to be in condition for allowance.

The Boyd publication discloses a system for the storage and retrieval of video image frames. The Boyd system does not teach the use of a frame store that is capable of storing both a full resolution image frame and a corresponding reduced spatial resolution image frame at the same time. Amended Claims 9 through 11 all require the use of such a frame store. Support for this amendment can be found generally throughout the specification and specifically in Claim 2. Thus the applicant believes that amended Claims 9 through 11 are in condition for allowance.

Claims 12 and 14 have been amended such that the operation of the size reducer in producing the reduced size image data set from the corresponding full size image data set is "in response" to the writing of the full size image data set into the frame store. Boyd clearly does not teach this responsive use of the size reducer. To perform such an operation with the Boyd system an operator would have to orchestrate each step. Thus the applicant believes that amended Claims 12 and 14 are patentably distinguishable over the Boyd disclosure.

Amended Claim 13 is dependent upon amended Claim 12 and adds considerable detail and thus is also believed to be in condition for allowance.

Claim 15 has been added to more precisely claim the applicant's inventive concept. Claim 15 calls for "a frame store coupled to selectively receive from either an external source or said image store and store one of said full size image data sets". Further the

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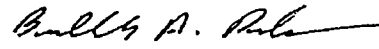
12

"frame store is operable such that when a full size image data set is received from an external source or is received from said image store and said image store does not contain a corresponding reduced size image data set, said frame store outputs a copy of said full size image data set to said size reducer". This automatic use of the size reducer is clearly not taught by the Boyd publication. Again, this type of operation would require complete operator orchestration in the Boyd system. Support for this Claim can be found at least on page 3 of the specification. The applicant believes that Claim 15 is patentably distinguishable over the Boyd publication.

The Yamamoto et al reference, which was cited but not applied, does not appear to be pertinent to the claims.

In the event that this amendment does not place this application fully in condition for immediate allowance for any reason, a telephone interview is respectfully requested at the number listed below if the Examiner believes such an interview would be productive.

Respectfully submitted,
Daniel A. Beaulier


by Bradley A. Perkins
Attorney for Applicant
Registration No. 31,406
(415) 367-2605

AMPEX CORPORATION
401 Broadway, MS. 3-35
Redwood City, CA 94063-3199
January 28, 1986

MAIL ROOM
JAN 28 1986
THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Application of:
Daniel C. Reulier

Serial No.: 740,297

Filed: May 31, 1985

For: Electronic Still Store
with High Speed Sorting and
Method of Operation

) Group Art Unit : 262
) Examiner : D. Harvey
) Attorney Docket No.: AV-3033 K1

I hereby certify that this correspondence is being
deposited with the United States Postal Service as
first class mail in an envelope addressed to:
Commissioner of Patents and Trademarks, Washing-
ton, D.C. 20231, on 1-28-86

Bradley A. Perkins 1-28-86
Bradley A. Perkins, Reg. # 31,406 DATE

Hon. Commissioner of Patents and Trademarks
Washington, D.C. 20231

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FEB 10 1986

GROUP ROOM

Dear Sir:

Transmitted herewith is an amendment in the above-identified
application.

() No additional fee is enclosed because this application was filed
prior to October 25, 1965 (effective date of Public Law 89-93).

(xx) No additional fee is required.

() The fee has been calculated as shown below.

Claims as amended:

	Claims remaining after amendment	Highest number previously paid for	Present extra	Rate	Addi- tional fee
Total Claims				x12	
Independent Claims				x34	
Total additional fee for this amendment					

() Charge \$_____ to Deposit Account No. 01-1771. A duplicate
copy of this sheet is enclosed.

(xx) The Commissioner is hereby authorized to charge any fees
under 37 C.F.R. 1.16 and 1.17 which may be required by this
paper, or credit any overpayment, to Deposit Account No.
01-1771. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

AMPEX CORPORATION

By *Bradley A. Perkins*
Bradley A. Perkins
Registration No. 31,406

Dated: January 28, 1986
401 Broadway, M.S. 3-35
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(REV. 10/7/85)


 Address: COMMISSIONER OF PATENTS AND TRADEMARKS
 Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
06/740,297	05/31/85	BEAULIER	D AV-3033N1

 AMPEX CORP.
 401 BROADWAY, MS 3-35
 REDWOOD CITY, CA 94063-3199

EXAMINER	
HARVEY, D	
ART UNIT	PAPER NUMBER
262	23

DATE MAILED:

04/21/87

NOTICE OF ABANDONMENT

This application is abandoned in view of:

1. ☐ Applicant's failure to respond to the Office letter, mailed _____.
2. ☒ Applicant's letter of express abandonment which is in compliance with 37 C.F.R. 1.138.
3. ☐ Applicant's failure to timely file the response received _____ within the period set in the Office letter.
4. ☐ Applicant's failure to pay the required issue fee within the statutory period of 3 months from the mailing date of _____ of the Notice of Allowance.
 - ☐ The issue fee was received on _____.
 - ☐ The issue fee has not been received in Allowed Files Branch as of _____.

In accordance with 35 U.S.C. 151, and under the provisions of 37 C.F.R. 1.316(b), applicant(s) may petition the Commissioner to accept the delayed payment of the issue fee if the delay in payment was unavoidable. The petition must be accompanied by the issue fee, unless it has been previously submitted, in the amount specified by 37 C.F.R. 1.17 (i), and a verified showing as to the causes of the delay.

If applicant(s) never received the Notice of Allowance, a petition for a new Notice of Allowance and withdrawal of the holding of abandonment may be appropriate in view of *Delgar Inc. v. Schuyler*, 172 U.S.P.Q. 513.
5. ☐ Applicant's failure to timely correct the drawings and/or submit new or substitute formal drawings by _____ as required in the last Office action.
 - ☐ The corrected and/or substitute drawings were received on _____.
6. ☐ The reason(s) below.

James J. Groody
 James J. Groody
 Supervisory Patent Examiner
 Art Unit 262
David Harvey
 (703) 557-9765

Serial No. 018,786

-2-

Art Unit 262

1. Claims 2-4, 6, 7 and 15-28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1) In claim 2, line 9, "frame of video data" has no antecedents and should read --of the video frames--.

2) In claim 2, line 21, --an-- should be inserted before "output".

3) In claim 2, line 27, --means-- should be inserted after "store". Similar clarification is needed in line 31.

4) In claim 2, line 32, "corresponding" should be changed to --returned--.

5) In claim 5, line 2, "corresponding" should be deleted.

6) In claim 3, line 3, "image" should be --images--.

7) In claim 3, line 4, "one-fourth" appears to be misdescriptive because each dimension is reduced by $\frac{1}{4}$ thus the total resolution is reduced by $\frac{1}{16}$ (see column 22).

8) In claim 6, line 7, "the received" has no antecedents and should be changed to --an--.

9) In claim 15, line 6, "said" should be deleted.

10) In claim 15, line 8, "corresponding" should be deleted.

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Art Unit 262

11) In claim 15, line 15, "one of said" should be changed to --a--.

12) In claim 15, line 15, "sets" should be change to --set--.

13) In claim 15, line 16, "a" should read --the--.

14) In claim 15, line 23 and 24, "with the corresponding full size image data set" is indefinite because it is not clear if the statement refers to actually storing the full size set or to the storing of the reduced set with a previously stored full size set.

15) In claim 16, line 6, "said video image" has no antecedent basis.

16) In claim 16, lines 8 and 9, "said second resolution image data" has no antecedent basis.

17) In claim 16, lines 9 and 10, "said first resolution image data" has no antecedent basis.

18) In claim 16, line 12, "its" should read --said--.

19) In claim 16, line 13, "corresponding image data at" should read --said data for the corresponding image having--.

20) In claim 16, lines 13 and 14, "for any image stored" is indefinite because it is not clear to what images it refers.

21) In claim 16, line 14, "said bulk storage memory" has no antecedent basis.

22) In claim 17, line 2, "allows access" is indefinite because it is not clear what means is being accessed.

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Serial No. 081,786

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Art Unit 262

23) In claim 18, line 3, "each image" should read --each of the images--.

24) In claim 18, line 3, "a" should read --said--.

25) In claim 18, line 8, "a" should read --said--.

26) In claim 18, lines 9 and 10 are indefinite because it is not clear how the storing recited in lines 9 and 10 relates to the storing recited in lines 5-8. Are the full size images recited in line 10 store as part of the pixel data recited in lines 5 and 6? Clarification is needed.

27) In claim 18, line 11, "video pixel data" is indefinite because it is not clear if it refers back to the pixel data recited in lines 5 and 6.

28) In claim 18, lines 12 and 13, "said full size images" is indefinite when referred back to the problems cited for lines 3-11.

29) In claim 18, "the corresponding reduced size images" has no antecedent basis and is indefinite.

30) In claim 18, line 17, "for storage" is indefinite when referred back to the claim has any data been stored.

31) In claim 25, it is not clear if the "storing" recited in line 2 refers back to the storing recited in claim 24. Similar clarification is needed for "accessing" recited in line 3.

32) In claim 25, line 4, does "selected reduced size images" refer to selected ones of the

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Art Unit 262

reduced size reproduction images recited in line 3.
Clarification is needed.

33) In claim 26, line 1 and 2, "each full size image" has no antecedent basis. Lines 4-5 require clarifications as cited for claim 25.

34) In claim 26, line 7, "outputting the group of stored reduced size images" is indefinite because: "the group" has no antecedent; it is not clear if "stored" refers back to the storing recited in line 4 or the storing recited in line 5.

35) Claims 27 and 28 require similar clarifications as exemplified above.

36) Throughout the claims the use of the term "operable" is indefinite because it is not clear if the term is used to recite how the means actually operates or how the means is capable of operating. The examiner notes that any video processing circuit comprising a computer and sufficient memory is considered to be capable of the recited operation if appropriately programmed. Clarification is needed.

2. The applicant is asked to review the claims and to correct any section 112 problems similar to.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless-

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Serial No. 081,786

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Art Unit 262

4. Claims 16, 17, and 23-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Taylor et al. '776.

1) With respect to claims 16, 17, and 24-26: Taylor et al. '776 disclose a still picture storage system as is shown in Figure 19. The system comprises a first memory 14/24 which receives picture data representing full size images. The system includes a size changing means 23 for receiving the full size images and for producing reduced size copies. The system further comprises a disc store 18/20 for storing both the full size and the reduced size image frame copies (column 3, lines 22-35). Taylor et al. further disclose that a multiple display of pictures is made by writing more than one compressed picture from the disc into the frame store (column 12, lines 38-43).

2) With respect to claim 23:

Taylor et al. further disclose interfacing a VTR to the disc store to provide additional storage (see Figure 18). The VTR and the disc store are both capable of storing a plurality of the full and reduced size images.

5. The examiner notes that the art has been applied to the extent of the examiner's understanding of the claimed system in view of the section 112 problems.

6. Claims 2, 15, 18, 19, 27 and 28 would be allowable if rewritten or amended to overcome the rejection under 35 U.S.C. 112.

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Serial No. 081,786

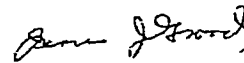
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Art Unit 262

7. Claims 3, 4, 6, 7 and 20-22 would be allowable if rewritten to overcome the rejection under 35 U.S.C. 112 and to include all of the limitations of the base claim and any intervening claims.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Harvey whose telephone number is (703) 557-7948.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 557-3321.


James J. Gandy
Supervisory Patent Examiner
Art Unit 262

D. HARVEY:flj DA

703-557-7948

12-21-87



PATENT

In re application of

Daniel A. Beaulier

Serial No.: 018,786

Filed: February 24, 1987

For: ELECTRONIC STILL STORE
WITH HIGH SPEED SORTING
AND METHOD OF OPERATIONGroup Art Unit: 262
Examiner: D. Harvey
Attorney Docket No.:
AV-3033 N2I hereby certify that this correspondence is being
deposited with the United States Postal Service as
first class mail in an envelope addressed to:
Commissioner of Patents and Trademarks, Washing-
ton, D. C. 20231. or April 27, 1988 gsa

George B. Almeida, Reg. # 20,696 DATE 4/27/88

AMENDMENT

Hon. Commissioner of Patents and Trademarks
Washington, D.C. 20231

Dear Sir:

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MAY 11 1988

GROUP 2601

In response to the Office Action dated January 4, 1988, please amend the above-identified application as follows. Applicant includes herewith a Request for an Extension of Time of one month, and authorization for the payment of the requisite fee of \$56.00.

IN THE SPECIFICATION:

Page 2, line 11, change "Ditigal" to --Digital--;
Page 4, line 18, before "which" insert --in--; after
"which" insert --the sole--;

line 19, delete "1";

line 22, change "FIGURE 1" to --the sole FIGURE--;

Page 5, lines 4-6, change "Apparatus and Method for Chroma
Separation, AV-2883, by" to --the U.S.

Patent No. 4,675,876, issued September 22,

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cont

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1987 to--;;

line 7, before "which" insert --which is assigned
to the same assignee as this application,
and--;

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line 18, change "An" to --The--; change "A/D" to
--A-D--;

line 28, change "afford" to --affords--;

Page 6, line 7, after "or" insert --from--;

line 21, after "initially" insert a comma --,--;

line 22, after "contain" insert a comma --,--;

line 23, after "resolution" delete the comma --,--;

after "image" insert a comma --,--;

Page 7, line 5, after "copy" insert a comma --,--;

line 22, delete "from";

line 25, change "to form" to --, for forming--.

IN THE CLAIMS:

X.1. (thrice amended) An electronic still store
system comprising:

an image store means for retrievably storing
therein a plurality of image frame copies of video frames,
the image frame copies comprising data representing [a] full
spatial resolution images [image] and corresponding data
representing [a] reduced spatial resolution images [image]
of the [each frame of] video frames [data];

[a] frame store means [which is operable in a
first mode] for receiving and storing in a first mode one of

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cont

said full spatial resolution images from said image store means and for repetitively generating a full spatial resolution image output, and [operable] in a second mode for receiving from the image store means and storing a plurality of said reduced spatial resolution images each at selectively located different positions, the frame store means [being further operable] in the second mode further [for] repetitively generating an image output [image] comprising the stored plurality of said reduced spatial resolution images; and

[a] size reducer means for receiving from the frame store means the stored full spatial resolution image and in response thereto returning to the frame store means a corresponding reduced spatial resolution image [and], wherein the frame store means receives and stores [is operable for receiving and storing] the returned [corresponding] reduced spatial resolution image while continuing to store the stored full spatial resolution image.

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1. (thrice amended) The electronic still store system according to claim ¹1, wherein the [corresponding] reduced spatial resolution images [image] each have a spatial resolution of one-fourth the spatial resolution of the corresponding full spatial resolution image.

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1. (thrice amended) The electronic still store system according to claim ¹1, wherein said frame store means

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includes a central processing unit, controlled by an operator[, coupled and operable] in said first mode for selecting [to select] which of said full spatial resolution images stored in said image store means is [are] to be retrieved from the image store means, and [coupled and operable] in said second mode for selecting [to select] which of said reduced spatial resolution images stored in said image store means are to be retrieved and stored in said frame store means, and further for selecting [to select] the different positions within a video [the] frame [store means] at which each of said retrieved reduced spatial resolution images is stored.

Claim 6, line 7, change "the received" to --an--.

Claim 7, line 9, delete "frame".

6.15. (twice amended) A video still store system comprising:

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cont

external source means for supplying a full size image data set representing a full size image frame;
a size reducer coupled to receive the [a] full size image data set [representing a full size image frame] for producing therefrom [and to produce] a reduced size image data set representing a corresponding reduced size image frame [in response thereto]:

an image store for storing a plurality of [said] full size image data sets representing a plurality of full size image frames and for storing a plurality of [corresponding] reduced size image data sets representing a plurality of reduced size image frames, each of said reduced size image data sets corresponding to one of said full size image data sets; and

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cont

[a] frame store means for storing one of said full size image data sets [coupled to selectively receive] from either the [an] external source or said image store, wherein if [and store one of said full size image data sets, said frame store being operable such that when a full size image data set is received from an external source or is received from said image store and] said image store does not supply [contain] a corresponding reduced size image data set, said frame store outputs a copy of said full size image data set to said size reducer, and receives in turn a corresponding reduced size image data set;

wherein [which is outputted to] said image store stores the reduced size image data set along [for storage] with the previously stored corresponding full size image data set.

16. (amended) An apparatus for storing video images as pixel data comprising:

means for receiving and storing in a first memory pixel data representing a video image [images] having

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a first resolution, and for generating from said pixel data representing said video image at said first resolution, pixel data representing a corresponding image having a second[,] lower resolution; [and]

means for storing in a second memory said second lower resolution pixel [image] data together with said first resolution pixel [image] data [in a second memory]; and

means for selectively accessing said first and second memories to supply either said pixel data for the video image at said [its] first resolution, or [only] said pixel data for the corresponding image [data] at said second resolution, [for any image stored in said bulk storage memory] for further processing.

17. (amended) The apparatus of claim 16 wherein said means for selectively accessing allows access to a plurality of sets of pixel data [images] at said second resolution [and storage of them] in selected groups [blocks] of memory locations in said first memory wherein the pixel data at said second resolution simultaneously is [so that they may be further] processed as a single composite mosaic of reduced size images.

SUBJ 18. (amended) An apparatus for storing video pixel data representing video images of a first resolution and, for each of the images [image] at said [a] first

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resolution, a corresponding video image at a second resolution comprising:

random access memory means for individually storing video pixel data representing one of a succession of full size images [image] at said first resolution and a corresponding reduced size version thereof at said [a] second resolution;

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[means for storing one at a time in said random access memory means a plurality of said full size images;]

memory means for receiving said video pixel data from said random access memory means and for storing said succession of full size images and the corresponding reduced size versions thereof, [images received from said random access memory means] and for outputting upon a user's command, either a selected one of the successive full size images [image] or only the corresponding reduced size versions thereof [image for the selected full size image] for storage back in said random access memory means;

means for selectively generating one of said corresponding reduced size versions [image] from the respective [any said] full size image in said random access memory means, [to be transferred to said memory means] and for transferring [storing] the video pixel data representing said reduced size image to [in said random access memory means prior to storage of] the contents of said memory means via said random access memory means [in said memory means].

19. (amended) An apparatus for storing video pixel data as at least one full size image at a first resolution, and at least one reduced size image thereof at a second lower resolution, [of pixel data] comprising:

random access memory means having an input port and an output port, for storing the video pixel data presented at the [an] input port [and having at least one output port];

[means for storing] said video pixel data representing the [a] full size video image at a first resolution being stored in a first group of memory locations in said random access memory means;

bulk storage memory for also storing the video pixel data and for presenting selected groups [blocks] of video data at said input port for storage by said random access memory means;

size reducing means responsive [coupled] to said random access memory means for ^{directly} receiving [accessing] said [image] video pixel data stored in said random access memory means representing said full size image at said first resolution, and for reducing said image to the [a] reduced size [counterpart] image at the [a] second[, lower resolution], and for supplying [storing] said reduced size image at said second resolution, ^{directly back} to [in] said random access memory means in a second group of memory [storage] locations therein; [and]

control means coupled to said random access memory means, to said bulk storage memory [means] and to said size reducing means, for causing said size reducing means to generate said reduced size image at said second resolution and to supply [store] same to [in] said random access memory means in said second group of memory [storage] locations; and

said control means further causing the transfer of [each time] the full size and reduced size video pixel data from said random access memory means [is to be transferred] to said bulk storage memory [means] for storage, [and for causing the video pixel data from both said first and second plurality of memory locations in said random access memory means to be transferred to said bulk storage means for storage after said reduced size image is generated and stored in said second group of storage locations,] and for causing the selective transfer [of video pixel data] from said bulk storage memory ^{directly} [means] into said random access memory means of [for storage such that] either said full size image at said first resolution [image] or said [only the] reduced size image at said second lower resolution [counterpart are transferred into said random access memory means].

20. (amended) The apparatus of claim 19 wherein said control means also determines the [is coupled for causing] selective transfer of said reduced size image at

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said second resolution [image directly] from said size reducing means into said bulk storage memory via the random access memory means.

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21. (amended) The apparatus of claim 19 wherein said control means also determines [is coupled for controlling] the memory locations in said random access memory means where the video pixel data defining said reduced size image at said second resolution [image] are stored upon transfer from said bulk storage memory [means].

22. (amended) The apparatus of claim ⁹~~19~~ ⁸[21] wherein said size reducing means produces said reduced size image at said second resolution [image] with one fourth [1/16th] the spatial resolution of said full size image at said first resolution, [image] and wherein said control means determines the [is coupled for causing] transfer of said reduced size image at said second resolution [image] into said random access memory means for storage at a selected one of 16 predetermined groups [blocks] of said memory locations.

SUBJ2

23. (amended) A system for storing [and retrieving] video data representing video images which are displayable [displayed] as rasters of vertically distributed horizontal lines, each represented video image normally

occupying a raster of selected vertical and horizontal size, the system comprising:

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a video image size reducer having an input for receiving [coupled to receive] video data representing a video image corresponding to the [a] selected raster size and for generating [generate therefrom at an output] video data representing a reproduction of said video image at [corresponding to] a selected fractional-size of said selected raster size;

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K

a first store [having an input] for receiving video data for storage and [an output] for providing video data therefrom [retrieved from storage], said first store having a capacity for storing the video data representing a video image corresponding to [of] the selected raster size together with video data representing said [a] reproduction of a video image at [corresponding to] the selected fractional-size [of said selected raster size];

a second store [having an input] for receiving and storing both the video data from the first store [for storage] and [an output] for providing video data therefrom [retrieved from storage], said second store having a capacity for storing video data representing a plurality of video images each corresponding to [a video frame of] the selected raster size, and video data representing a plurality of the reproductions [reproduction] of each video images at the [of] selected fractional-size of said selected raster size; and

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means for selectively transferring from said second [first] store to said first [second] store either said video data representing one of the plurality of [a] video images [image] corresponding to the selected raster size, or said video data representing the plurality of reproductions [a reproduction] of each [a] video image, at [which is] the selected fractional-size of said selected raster size.

Claims 24, 25, please cancel without prejudice.

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cont

26. (amended) The method of claim 29 [24] wherein each one of the full size images [image] occupies upon display a raster of selected vertical and horizontal size, [and] further comprising: [the steps of]

storing the [a] plurality of full size images and the plurality of their reduced size reproduction images; [and]

retrieving [accessing] the [a] plurality of reproductions of each video image [selected reduced size images]; [and]

storing the plurality of reproductions [them] in a random access memory; and

outputting the [group of] stored plurality of reproductions [reduced size reproduction images] as a mosaic of reproduction images occupying a raster of the selected vertical and horizontal size.

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~~27~~ (amended) A method of storing video pixel

data comprising:

receiving and storing in selected storage locations in a random access memory, full video pixel data comprising a full size image;

generating from the full video pixel data, reduced [therefrom] video pixel data representing a reproduction thereof in the form of a reduced size image at a lower resolution; [from the full size image data and]

storing the reduced video pixel data representing the reduced size image [so generated] in additional storage locations in said random access memory along with the full video pixel data [size image];

storing both the full size image and the reduced size image in bulk storage memory; and

selectively transferring either the full size image or the reduced size image from said bulk storage memory [means] into said random access memory [means] for further processing.

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~~28~~ (amended) A video still store system com-

prising:

an external source for supplying a plurality of full size image data sets representative of corresponding full size images;

an image store for storing said full size image data sets [representing a plurality of full size

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images], and for storing a like plurality of reduced size image data sets representing a plurality of reduced size images, each of said reduced size image data sets corresponding to one of the full size image data sets;

[an external source input for receiving from an external source full size image data sets;]

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a memory for simultaneous storage of one of said full size image data sets and a [the] corresponding one of said reduced size image data sets;

a size reducer means for receiving from said memory the stored one of said full size image data sets, and for producing and returning to said memory the corresponding one of said reduced size image data sets [set];

said memory being responsive [coupled and operative] to [selectively receive from] either the external source [input] or the image store for storing [and to store] said one of said full size image data sets, [and to output as an output image the stored one of said full size image data sets, and to communicate to the size reducer the stored one of said full size image data sets, and to receive from the size reducer and to store the corresponding reduced size image data set,] and for supplying [to provide] to the image store both the stored one of said full size image data sets and the corresponding one of said reduced size image data sets; [set,]

said memory being responsive to [and to receive from] the image store [and] to store at different

selected locations the [selected ones of said] plurality of reduced size image data sets;[, and]

said memory further supplying [to output] as an [said] output image either the plurality of reduced size image data sets arranged [stored selected ones such that the selected one are disposed] at different locations within the output image, or the [to receive and store from said image store only a] full size [sized] image data set; and

means responsive to [retrieve data from] said memory for displaying the output image as [and display it on] a raster scanned video display.

[Please add the following new Claim 29 to replace original Claims 24, 25.]

SUB 33/

--29. A method of storing video pixel data for access and display comprising:

providing data sets for a plurality of full size images at a first spatial resolution;

generating, from the data sets of the full size images, second data sets representing a corresponding plurality of reduced size reproduction images at a second lower spatial resolution;

storing both the data sets of the plurality of full size images and the data sets of the corresponding plurality of reduced size reproduction images in respective selected groups of storage locations; and

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selectively accessing either one of the data sets of the plurality of full size images or the sets of the corresponding plurality of the reduced size reproduction images simultaneously.--

REMARKS

By this amendment, Claims 24, 25 are cancelled without prejudice and replaced by new Claim 29; Claims 2-4, 6, 7, 15-23, 26-28 are variously amended and along with Claim 29 are submitted for consideration in view of the remarks following. Applicant notes with appreciation the allowance of Claims 2, 15, 18, 19, 27, 28 if amended to overcome the rejection under 35 USC 112, and the allowance of Claims 3, 4, 6, 7, 20-22 if amended to overcome the 35 USC 112 rejection, and to include the limitations of the base and intervening claims.

In his Office Action, the Examiner rejected Claims 2-4, 6, 7, 15-28 under 35 USC 112, second paragraph; and Claims 16, 17, 23-26 under 35 USC 102(b) as anticipated by Taylor et al, '776.

Applicant has carefully reviewed the specification and has corrected various inconsistencies therein. The claims have also been carefully reviewed particularly in light of the Examiner's rejections and helpful suggestions, and have been amended throughout in keeping with the Examiner's suggestions as well as for purposes of standardizing and/or clarifying the language thereof.

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B-258

More particularly, regarding the rejection under 35 USC 112, second paragraph, the specific suggestions in Items (paragraphs) 1-6, 8-13, 18-19 and 23-25, of the Office Action, pages 1-4, have been complied with.

In Items 15-17, 21, 29 and 30 the claims in question have been amended to positively recite antecedents for the various terms referred to by the Examiner.

In Item 7, the term "one-fourth" is correct for the term "spatial resolution". One-sixteenth refers to the storage capacity of a single full size image, that is, over a picture raster. (See page 6, lines 15-18). Claim 22 also has been corrected.

In Item 14, lines 23, 24 (of the original claims) the storage refers to both the full size and reduced size data sets as clarified.

In Item 20, lines 13, 14, "either" image (is) stored.

In Item 22, line 2, the means being accessed is now clearly identified.

In Item 26, the passage in lines 9, 10 was deleted as redundant, and the language in lines 5-8 is amended to clarify the storage of full and reduced size image data.

In Items 27, 28, the "video pixel data" and "said succession of full size images" properly refer back to lines 5, 6 and line 6, respectively, of the original claims.

In Items 31 and 32, Claim 25 has been cancelled.

In Item 33, Claim 26 is now made dependent on new Claim 29, and in line 1, "each one of the full size images" refers back to Claim 29, lines 3-4. In lines 4-5 of original Claim 26, the "reduced size reproduction images" are recited in new Claim 29, line 7.

In Item 34, original Claim 26, line 7, "outputting the stored plurality of..." properly refers back to Claim 29, line 11.

In Item 35, Claims 27 and 28 have been carefully amended to clarify similar problems in antecedents as corrected in the other claims.

In Item 36, Applicant has deleted the term "operable" throughout all the claims and believes the claims as amended herein now recite language which is definite.

Accordingly, Applicant respectfully requests the withdrawal of the rejection under 35 USC 112, second paragraph, of Claims 2-4, 6, 7, 15-28 (and 29).

Regarding now the rejection of Claims 16, 17, 23-26 under 35 USC 102(b) as anticipated by Taylor et al, '776, Applicant has amended Claim 16, and has re-written Claims 24, 25 as new Claim 29. It is submitted that Taylor et al fails to anticipate the features in independent Claims 16 and 29, as well as independent Claim 23.

More particularly, Taylor et al may, in fact, include two stores, or memories 14/24 and 18/20, and an image size changer 23. However there is no further similarity to Applicant's invention as described and claimed.

The electronic arrangement and cooperating functions of the electronics are not similar, and are not the equivalent of the cooperating functions of Applicant's combination, as recited in Claims 16, 17, (new) Claim 29, and Claim 26 dependent upon Claim 29. The size changer 23 of Taylor et al is disposed between his frame store 14/24 and his disc store 18/20, and therefore supplies only reduced (or expanded) images to the disc store 18/20 (contrary to the Examiner's statement that both full and reduced images are stored in the disc store). Taylor et al thus teaches the use of a size change process each time a video image is supplied from the frame store 14/24 to the disc store 18/20 (FIGS. 5, 19), and also when the image is supplied from the disc store back to the frame store (FIGS. 18, 19).

On the other hand, Applicant's size reducer 26 is bidirectionally coupled only to his frame store 22, and is responsive to the frame store to supply a reduced size image at such time as only a full size image is stored in the frame store. In addition, Applicant's frame store 22 then supplies both the full size image and its corresponding reduced size image back to his disc store 24 for storage together. Subsequently, the full size images individually are returned to the frame store 22, or any number of the selected plurality of the reduced size images are returned for storage in the frame store 22, whereupon such re-stored images can be repeatedly read out.

Note further, that in Applicant's system, it is the frame store 22 which is accessed to provide the image output for display, further use, etc. More particularly, the frame store 22 has two modes of access; first, it receives and stores a full size image, which then is repeatedly read out from the frame store 22; or second, it receives and stores all (or part of) a plurality (e.g., 16) of reduced size images, which then are all (or partially) repeatedly read out from the frame store 22 simultaneously as a single mosaic of whatever plurality of reduced size images was stored in the frame store 22. That is, in the second mode, all of the stored, reduced size images are outputted for display simultaneously in a single video picture, each in its assigned two-dimensional location in the picture raster.

Taylor et al fails to provide or intend the above discussed features.

Accordingly, Claim 16 now recites inter alia, means for storing in a second memory (i.e., frame store 22) the second lower resolution pixel data together with a (full) first resolution pixel data, and means for accessing the second memory to supply either the first resolution pixel data (one full video image), or the second resolution pixel data (multiple reduced video images), for further processing. These features are not taught or suggested by Taylor et al.

Claim 17 is dependent upon Claim 16 and further specifies that multiple sets of second resolution pixel data are accessed from selected groups of memory locations in the second memory...to allow simultaneous read out and display of the multiple sets of data at the second resolution in a single composite mosaic. These features also are not taught or suggested by Taylor et al.

Likewise, Claim 29 include steps of providing data sets for a plurality of full size images, generating a like plurality of reduced size images from the respective data sets of full size images, storing both the full size data sets and the reduced size data sets in respective groups of storage locations, and selectively accessing either, one of the full size data sets or (all) of the reduced size data sets simultaneously. Claim 26 further recites steps of storing the plurality of full size images and their reduced size images, in respective groups of storage locations, and retrieving the reduced size images and storing them in a random access memory. The Claim 26 continues with outputting the plurality of reproductions (of the reduced size images) as a full size mosaic, etc.

These features of Claims 29 and 26 are not taught or suggested in Taylor et al.

For the same reasons as above, Claim 23 recites language which is not anticipated by Taylor et al. In Claim 23, a first store stores video data representing a full size video image as well as the reduced size video image

corresponding to the full size video image, a second store receives and stores a plurality of full size video images and a like plurality of the reproductions thereof at a fractional-size. Claim 23 further includes means for transferring either one of the full size video images, or the plurality of reproductions as a full image, from the second store to the first store.

These features also are not taught or suggested in Taylor et al.

Accordingly, Applicant respectfully submits that the rejection of Claims 2-4, 6, 7, 15-28 (and 29) under 35 USC 112, second paragraph, is overcome for reasons given above, and that amended Claims 16, 17, 23-26 are not anticipated by Taylor et al but are allowable thereover as discussed above. Action in the form of allowance of Claims 2-4, 6, 7, 15-23, 26-29 is earnestly solicited.

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If Examiner finds slight differences that can be resolved by a telephone interview, Applicant hereby requests leave for such interview by telephoning the undersigned collect at (415) 367-3331.

Respectfully submitted,

AMPEX CORPORATION

By George B Almeida
George B. Almeida
Agent of Applicant
Registration No. 20,696

Dated: April 27, 1988

401 Broadway, M.S. 3-35
Redwood City, CA 94063-3199



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Daniel A. Beaulier

Serial No.: 018,786

Filed: February 24, 1987

For: ELECTRONIC STILL STORE
WITH HIGH SPEED SORTING
AND METHOD OF OPERATION

Group Art Unit : 262
 Examiner : D. Harvey
 Attorney Docket No.: AV-3033 N2

I hereby certify that this correspondence is being
 deposited with the United States Postal Service as
 first class mail in an envelope addressed to:
 Commissioner of Patents and Trademarks, Washing-

ton, D. C. 20231. on April 27, 1988 *ba*

George B. Almeida
 George B. Almeida, Reg. # 20,696

DEPOSIT ACCOUNT NO.	
011771	
FEE CODE	VALUE FORWARDED

Hon. Commissioner of Patents and Trademarks
 Washington, D.C. 20231

RECEIVED

MAY 11 1988

GROUP 260

Dear Sir:

Transmitted herewith is an amendment in the above-identified application.

() No additional fee is enclosed because this application was filed
 prior to October 25, 1965 (effective date of Public Law 89-63).

(X) No additional fee is required.

() The fee has been calculated as shown below.

Claims as amended:

	Claims remaining after amendment	Highest number previously paid for	Present extra	Rate	Additional fee
Total Claims				x12	
Independent Claims				x34	
Total additional fee for this amendment					

() Charge \$_____ to Deposit Account No. 01-1771. A duplicate copy of this sheet is enclosed.

(xx) The Commissioner is hereby authorized to charge any fees under 37 C.F.R. 1.16 and 1.17 which may be required by this paper, or credit any overpayment, to Deposit Account No. 01-1771. A duplicate copy of this sheet is enclosed.

Respectfully submitted,
 Daniel A. Beaulier
 AMPEX CORPORATION

By *George B. Almeida*
 George B. Almeida
 Registration No. 20,696

Dated: April 27, 1988
 401 Broadway, M.S. 3-35
 Redwood City, California 94063
 (415) 367-

(REV. 10/7/85)

AX061731

B-266

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark OfficeAddress: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

SERIAL NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NO.
077 0107/86	02/24/87	DEMUTER	

RICHARD P. LANGE
AMPEX CORP.
401 BROADWAY, MS 3-35
REDWOOD CITY, CA 94063

HARVEY, E. EXAMINER	
ART UNIT	PAPER NUMBER
29	29
DATE MAILED: 07/22/89	

This is a communication from the examiner in charge of your application
COMMISSIONER OF PATENTS AND TRADEMARKS

- ☒ This application has been examined ☒ Responsive to communication filed on 4/29/88 ☒ This action is made final.
A shortened statutory period for response to this action is set to expire 3 (three) months, days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input type="checkbox"/> Notice re Patent Drawing, PTO-848. |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449 | 4. <input type="checkbox"/> Notice of Informal Patent Application, Form PTO-152 |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474 | 6. <input type="checkbox"/> |

Part II SUMMARY OF ACTION

1. ☒ Claims 2-4, 6, 7, 15-23 and 26-29 are pending in the application.
Of the above, claims _____ are withdrawn from consideration.
2. ☒ Claims 24 and 25 have been cancelled.
3. ☒ Claims 2, 4, 6, 7, 15, 27 and 28 are allowed.
4. ☒ Claims 3, 16-19, 21-23 and 29 are rejected.
5. ☒ Claims 20 and 26 are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings which are acceptable for examination purposes until such time as allowable subject matter is indicated.
8. ☐ Allowable subject matter having been indicated, formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. These drawings are ☐ acceptable; ☐ not acceptable (see explanation).
10. ☐ The ☐ proposed drawing correction and/or the ☐ proposed additional or substitute sheet(s) of drawings, filed on _____ has (have) been ☐ approved by the examiner. ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed _____, has been ☐ approved. ☐ disapproved (see explanation). However, the Patent and Trademark Office no longer makes drawing changes. It is now applicant's responsibility to ensure that the drawings are corrected. Corrections MUST be effected in accordance with the instructions set forth on the attached letter "INFORMATION ON HOW TO EFFECT DRAWING CHANGES", PTO-1474.
12. ☐ Acknowledgment is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received
☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

PTOL-326 (Rev. 7-82)

EXAMINER'S ACTION

AX061732

B-267

Serial No. 018,786

-2-

Art Unit 262

1. Claims 3, 22, and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1) Claim 22 is confusing and appears to be mis-descriptive because an image which has one fourth the spacial resolution of a full size image would appear to also have one fourth the size. As recited it appear to have 1/16 the size. Clarification is needed. Similar clarification is needed in claim 3 as was set forth in paragraph 1 of paper #26.

2) In claim 29, lines 13-16 are confusing and indefinite because line 13-15 recite that "one" of the full or reduced sets is accessed and then line 16 recites that the sets are accessed "simultaneously". These recitation appear to be contradictory.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless-

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 16-19, 21, and 23-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Taylor et al. as was set forth in paragraph 4 of paper #26.

The applicant's arguments filed 4/29/88 have been fully considered but are not deemed persuasive for the following reasons:

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B-268

Serial No. 018,786

-3-

Art Unit 262

a) In the first paragraph on page 19 of the amendment the applicant argues that only reduced size (or expanded) images are stored on disc on Taylor's system. As previously pointed out, in lines 22-35 of column 3, Taylor clearly teaches storing both resolution images. It at least inherent that although the size reducer is connected as argued by the applicant, it does not necessarily provide expansion or reduction. The size reducer may pass the image unchanged.

b) In the second paragraph on page 19 the applicant appear to argue that the applicant's size reducer is bidirectionally coupled to his image store. The examiner notes that Taylor's is also in that the output of the size reducer is fed back to the frame store via the disc store.

c) In the first paragraph on page 20 the applicant argues that his system provides a second mode of accessing not provided by Taylor's system. Applicant's attention is directed to column 12 lines 32-43 in which Taylor describes such accessing.

4. The examiner notes that in view of the cited section 112 problems, the art of record has not been applied to claims 29, 26, 3, and 22.

5. Claim 26 would be allowable if rewritten to overcome the rejection under 35 U.S.C. 112 and to include all of the limitations of the base claim and any intervening claims.

6. Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten

Serial No. 018,786

-4-

Art Unit 262

in independent form including all of the limitations of the base claim and any intervening claims.

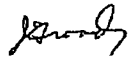
7. Claims 2, 4, 6, 7, 15, 27, and 28 allowable over the prior art of record.

8. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). The practice of automatically extending the shortened statutory period an additional month upon the filing of a timely first response to a final rejection has been discontinued by the Office. See 1021 TMOG 35.

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 CFR 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Harvey whose telephone number is (703) 557-7948.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 557-3321.


James J. Groody
Supervisory Patent Examiner
Art Unit 262

D. Harvey:pdw *DA*

703-557-7948

7-20-88

AX061735

B-270



PATENT

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11-8-88

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of)	Group Art Unit: 262
Daniel A. Beaulier)	Examiner: D. Harvey
Serial No.: 018,786)	Attorney Docket No.: AV-3033 N2
Filed: February 24, 1987)	Whereby, certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to:
For: ELECTRONIC STILL STORE WITH HIGH SPEED SORTING AND METHOD OF OPERATION)	Commissioner of Patents and Trademarks, Washington, D.C. 20231, on <u>Oct. 5, 1988</u>
)	<u>George B. Almeida</u> 10/5/88
)	George B. Almeida, Reg. # 20,696 DATE

Please
Enter
DN 11/8/88

AMENDMENT UNDER 37 CFR 1.116

RECEIVED

Hon. Commissioner of Patents and Trademarks-56
Washington, D.C. 20231

OCT 24 1988

Dear Sir:

01-1771

GROUP 260

In response to the Office Action dated July

10-26-88
CB

22,1988 finally rejecting the claims, and as provided by 37 CFR 1.116, entry of the following amendment as placing the above-identified application in condition for allowance, or in better form for appeal, is respectfully requested.

IN THE CLAIMS

Claims 16, 17 please cancel without prejudice.

7.18. (twice amended) An apparatus for storing video pixel data representing video images of a first resolution and, for each each of the images at said first resolution, a

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cont

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corresponding video image at a second resolution,
comprising:

6 random access memory means for individually
storing video pixel data representing one of a succession of
full size images at said first resolution and a
corresponding reduced size version thereof at said second
resolution;

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bulk memory means for receiving said video pixel
data from said random access memory means and for storing
said succession of full size images and the corresponding
reduced size versions thereof, and for outputting upon a
user's command, either a selected one of the successive full
size images or selected ones of [only] the corresponding
reduced size versions thereof for direct transfer to, and
storage back in, said random access memory means; and

means responsive to said random access memory
means for selectively generating one of said corresponding
reduced size versions from the respective full size image in
said random access memory means, and for transferring the
23 video pixel data representing said full size image and the
corresponding reduced size version back [image] to the
contents of said [memory means via said] random access
memory means.

Claim 19, line 24, after "resolution" insert

--directly back--;

-3-

AV-3033 N2

line 44, after "storage memory" insert

--directly--

Claims 20, 21, please cancel without prejudice.

10.23 (twice amended) [A system for storing video data

representing video images which are displayable as rasters of vertically distributed horizontal lines, each represented video image normally occupying a raster of selected vertical and horizontal size, the system comprising:

J2
cont
a video image size reducer having an input for receiving video data representing a video image corresponding to the selected raster size and for generating video data representing a reproduction of said video image at a selected fractional-size of said selected raster size;

a first store for receiving video data for storage and for providing video data therefrom, said first store

K 13 [having a capacity for] storing the video data representing ^{the} ~~a~~ video image corresponding to the selected raster size

K simultaneously together with ^{the} ~~a~~ video data supplied by said

K video image size reducer representing said reproduction of ^{the} ~~a~~ video image at the selected fractional-size;

K a second store for receiving and storing ^{stored in} ~~both~~ the
K 19 video data ~~from~~ the first store and for providing video data
therefrom directly to the first store, said second store

K 2) ^{Further} ~~having~~ ^{for} ~~a capacity for~~ storing video data representing a
K plurality of ^{additional} ~~video~~ images each corresponding to the selected

3 raster size, and video data representing a plurality of ^{additional} ~~the~~ reproductions ~~of each video image~~ at the selected fractional size of said selected raster size; and

means for selectively transferring from said

17 second store directly to said first store either ~~said~~ video data representing of the plurality of video images corresponding to the selected raster size, or ~~said~~ video data representing ^{or} ~~the~~ plurality of reproductions ~~of each video image~~ at the selected fractional-size of said selected raster size.

Claim 26, please cancel without prejudice.

1329 (amended) A method of storing video pixel data

for access and display comprising:

providing data sets for a plurality of full size images at a first spatial resolution;

generating, from the data sets of the full size images, ⁶ ~~a~~ second data set[s] representing a corresponding plurality of reduced size reproduction images at a second lower spatial resolution;

storing both the data sets of the plurality of full size images and the data set[s] of the corresponding plurality of reduced size reproduction images in respective selected groups of storage locations; and

selectively accessing ^{from from the storage locations a} ~~one of the data~~ ^{representing one} ~~set of the plurality of full size images, or the set[s] of~~ ^{and a data set representing one}

J3
concl

the corresponding plurality of the reduced size reproduction
images, simultaneously.

Please add the following new Claims 30 and 31 to
replace original Claims 20 and 26 respectively.

14-30. An apparatus for storing video pixel data as
at least one full size image at a first resolution, and at
least one reduced size image thereof at a second lower
resolution, comprising:

4
random access memory means having an input port
and an output port, for storing the video pixel data
presented at the input port;

3
int
said video pixel data representing the full size
video image at a first resolution being stored in a first
group of memory locations in said random access memory
means;

bulk storage memory for also storing the video
pixel data and for presenting selected groups of video data
at said input port for storage by said random access memory
means;

size reducing means responsive to said random
access memory means for receiving said video pixel data
stored in said random access memory means representing said
full size image at said first resolution, and for reducing

17
K video pixel data representing
said image to the reduced size image at the second lower
resolution, and for supplying said reduced size image at

producing reduced size
reduced size

said second resolution to said random access memory means in a second group of memory locations therein;

control means coupled to said random access memory means, to said bulk storage memory and to said size reducing means, for causing said size reducing means to generate said reduced size image at said second resolution and to supply ~~said reduced size image~~ ^{same} to said random access memory means in said second group of memory locations;

said control means further causing the transfer of the full size and reduced size video pixel data from said random access memory means to said bulk storage memory for storage, and for causing the selective transfer from said bulk storage memory into said random access memory means of either said full size image at said first resolution or said reduced size image at said second lower resolution; and

wherein said control means also determines the selective transfer of said reduced size image at said second resolution from said size reducing means into said bulk storage memory via the random access memory means.--

¹⁵
--31. A method of storing video pixel data for access and display comprising:

providing data sets for a plurality of full size image at a first spatial resolution, wherein each one of the full size images occupies upon display a raster of selected vertical and horizontal size;

generating, from the data sets of the full size
 8 images, ~~a~~ second data set^s representing a corresponding
 plurality of reduced size reproduction images at a second
 lower spatial resolution;

storing both the data sets of the plurality of
 12 full size images and the data sets of the corresponding
 plurality of reduced size reproduction images in respective
 selected groups of storage locations;

selectively accessing ^{from the storage locations a data set of one of} ~~one of the data sets of the~~
 plurality of full size images, ^{and one of} ~~of the sets of the~~
 corresponding plurality of the reduced size reproduction
 images simultaneously;

wherein the step of accessing further includes,
 20 retrieving ^{retrieved} ~~the~~ plurality of reproductions ^{mass} ~~of each video~~
 image^s storing the plurality of ~~reproductions~~
 access memory, and outputting the stored plurality of
 21 ^{retrieved images} ~~reproductions~~ as a mosaic of reproduction images occupying a
 raster of the selected vertical and horizontal size.--

REMARKS

By this amendment, Claims 16, 17, 20, 21 and 26
 are cancelled without prejudice, Claims 18, 19, 23, are
 variously amended and Claims 20 and 26 are re-written as new
 Claims 30 and 31, respectively, to make them independent and
 to include all the limitations of the respective base claim,
 as suggested by the Examiner. Applicant notes with

appreciation the allowance of Claims 2, 4, 6, 7, 15, 27 and 28 and the indication of allowability of Claims 20 and 26 if re-written.

In his Office Action, the Examiner finally rejected Claims 3, 22, 29 under 35 USC 112, second paragraph, as indefinite; finally rejected Claims 16-19, 21, 23-26 under 35 USC 102(b) as anticipated by Taylor et al; indicated the allowability of Claims 20, 26 if re-written, and allowed Claims 2, 4, 6, 7, 15, 27 and 28.

Regarding the rejection under 35 USC 112, applicant has deleted the word "either" from Claim 29, line 13, and added a comma (,) to line 14, thereby clarifying that the accessing is done to one of the... full size images, or to the reduced size reproduction images in a set simultaneously. Thus the confusion is believed removed.

Regarding the Examiner's indication that the Claims 3 and 22 language of one-fourth the spatial resolution would cause the reduced images also to have one-fourth the size, applicant respectfully refers in particular to page 6, lines 14-18, wherein is stated that , "Because of the two dimensional nature of a video image, a quarter size image defined by video having one-fourth the spatial resolution of a full size image requires one-sixteenth the storage capacity of a full size, full

spatial resolution image." (See also page 7, lines 10-14). Thus the language in the Claims 3 and 22 is, in fact, correct and definite. One-fourth the spatial resolution refers to each dimension, whereby if a picture (image) is one-fourth the width (horizontally) and one-fourth the height (vertically) it obviously takes up one-sixteenth of the full picture raster. That is, sixteen of the one-fourth resolution images would fit on the raster. Thus, applicant respectfully submits the language of Claims 3 and 22 is definite, and requests that the rejection thereof under 35 USC 112 be withdrawn.

Regarding the rejection of Claims 16-19, 21 and 23-26 under 35 USC 102 (b), applicant respectfully submits that the remaining Claims 18, 19, 23 and 26 (new Claim 31) are not fully met by the cited reference to Taylor et al. For example, Claim 18 recites, inter alia, a random access memory means (frame store 22) for individually storing...succession of full size images...and a corresponding reduced size version thereof at said second resolution (underlining added). Taylor et al fails to describe and does not intend the storage of both a reduced size and a full size image in his frame store (14/24 or 124/125) in the manner of applicant. In fact, any size reduction, and thus reduced size image, is made on the full size image only at the time the latter is transferred from the disk storage (18/20) to the frame store (24/124/125) as

depicted in FIG'S 5, 18 and 19, or from the frame store to the disc storage as depicted in FIG. 19. Applicant's invention on the other hand, as described and claimed, provides image reduction via his size reducer (26) coupled only to the frame store (22), and which receives the full size image only from the frame store whenever there is no reduced size image, and which then returns the reduced size image directly back to the frame store for storage thereof simultaneously with the corresponding full size image.

Contrary to the Examiner's statement in page 3, paragraph 3(a), of his Office Action, Taylor et al does not teach or imply that that his size reducer "does not necessarily provide expansion or reduction," and that "the size reducer may pass the image unchanged." Applicant has carefully reviewed the patent and fails to find therein any such description or implication. In the embodiments which include the size reducer, Taylor et al specifically employs an image size change each time a full size image is transferred between storage devices, and fails to imply that the size reducer may pass the image unchanged. If no size reduction is to be made, Taylor et al specifies merely omitting the size changing processor entirely (Col 5, lines 54-57). In any event, Taylor et al fails to store both the full size image and its reduced size version in his frame store as described and claimed by applicant.

In paragraph 3(b), page 3, of the Office Action, the Examiner notes that Taylor et al provides a size reducer output which is fed back to the frame store (but) via the disc store. Such a configuration fails to anticipate applicant's circuit configuration, wherein the size reducer 26 is directly coupled (only) to the frame store 22. This configuration allows applicant the advantages of high speed transfer of multiple, reduced size images in a single frame of video data. In the configuration of FIG'S 5, 18 or 19, Taylor et al must pass a frame of video data through his size changer 23 prior to supplying his frame store, whereupon he then accesses the frame store. Applicant respectfully submits that Taylor's use of a size changer between the two stores is an integral feature of his system, and that the re-arrangement thereof in the manner of applicant's system is made apparent only through hindsight and by application of the teachings of applicant.

Accordingly, Claims 18, 19 and 23 are variously amended herewith to further clarify the language thereof over the reference to Taylor et al. Claim 18 recites inter alia; a "random access memory means for... storing video pixel data representing... full size images... and a corresponding reduced size version thereof at said second resolution"; bulk memory means which stores both size images and which transfers either size of the images directly back to the random access memory means, with no other circuit

therebetween; and means for generating the reduced images from the full size images and returning both directly back to the contents of the random access memory means. Taylor et al fails to teach the above features of storing both image sizes simultaneously in the random access memory, the direct transfer of images between the disc storage and random access memory, or the transfer of images directly between the size reducer and only the random access memory.

Likewise, Claims 19 and 23 also recite the above features in differing language and terms, and thus are not anticipated by Taylor et al for the same reasons given above.

Claims 20 and 26 have been re-written as new Claims 30 and 31 as suggested by the Examiner, to include the limitations of the respective base claim, and new Claim 31 has been amended to overcome the 112 rejection as discussed above. Accordingly, applicant respectfully submits that claims 3, 18, 19, 22, 23, 29, 30 and 31, along with (allowed) Claims 2, 4, 6, 7, 15, 27 and 28, are in condition for allowance, which action is earnestly solicited.

If Examiner finds slight differences that can be resolved by a telephone interview, Applicant hereby requests